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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/657,050	09/07/2000	Hideaki Amano	08038.0019	3841

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 07/07/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/657,050

Applicant(s)

Examiner

M. L. Padgett

Group Art Unit

1762

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 5/9/03
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-8 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-8 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/09/03 has been entered.
2. The drawings are objected to because Figures 6-7 and 8 derived therefrom, are for conventional plasma apparatus, hence need to be labeled prior art. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. Applicant's 2/24/03 amendment corrected the 112 problems noted in section 2 of paper # 9. The subsequent amendment made on 5/09/03 adds no change in scope from the previous amendment, as it is only including the "a bent wave guide" from the body of the claim to the preamble. While it is noted that no antecedent basis is indicated between these two terms (in preamble and first use in body of claim), this causes no confusion in meaning, so while formal indication of antecedent basis may add clarity, it is not necessary.
4. The disclosure is objected to because of the following informalities: Proof reading of the specification to correct non-idiomatic phrasing, especially phrasing inconsistent with the figures (which provide support for their correction), that is related to

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problems that have been fixed in the claims. When making such corrections, please point out in the record the support in the specification, or rational therefore.

Appropriate correction is required.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 9 has been canceled, hence Yamazaki, in view of Kanekiyo et al, as applied thereto in section 5 of paper # 9 in mute.

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al, in view of Sato or Yamazaki, and further in view of Kanekiyo et al, as applied in section 6 of paper # 9.

Note further discussion of Yamazaki and Kanekiyo et al pertain to the rejection are found in section 5 of paper # 9.

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8. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al, in view of Jeng et al, or Maher et al, or Mayden et al, as discussed in section 7 of paper # 9.

The amended claims clarify placement and transfer of substrate issues, and this alternative rejection remains pertinent, as Wagner et al illustrates repeated identical placement when transferring substrate, but does not discuss it in detail, nor for individual substrates. See paper # 9, section 7 for further discussion providing further motivation of why it is important to maintain consistent substrate placement.

9. Applicant's arguments filed 2/24/03 and 5/9/03 have been fully considered but they are not persuasive.

As noted in the advisory action, Sato and Yamazaki both illustrate transferring a substrate from one identical microwave plasma chamber to another without changing the configuration of the substrate relative to the microwave plasma chamber. This is the opposite of what applicant alleges examiner said on p. 8 of their 5/9/03 response. Given Sato or Yamazaki et al as inspiration to employ a microwave chamber in Wagner et al's process, there is no reason to expect that one of ordinary skill will disregard the aspect of the configuration as taught when applying the use of microwave processes to the primary reference. That the secondary references do not explicitly show bends in the waveguides does not change that their waveguides are shown to have identical orientations with respect to the substrates and each other. This would not have been expected to change when one adds a conventional bend to the wave guide, hence applicant's arguments are not convincing. Simple logic and science provide reasons

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why one would have been expected to follow the pattern/configuration suggested by Sato or Yamazaki et al of identical chambers with identical orientations in the Wagner transfer system. As suggested in the rejection, it prevents physical hinderance of the structures. But also, one of ordinary skill knows that these chamber^s each have their own magnetic and electric fields associated with them, so one of competent workmanship would place them so that they have minimal interference with each other, i.e., symmetrically space about Wagner's circular structure, and symmetrical with respect to the various fields of each chamber, so no two field generators are closer to each other or clustered, and maximizing their separation. One of ordinary skill in the art knows from basic physics that electric and magnetic fields are additive or combine with or distort each other, hence would as a matter of course or competence arrange multiple units to minimize such distortion inorder to prevent distorting processing condition. Symmetric arrangement in Wagner et al's circular arrangement would necessitate all wave guide arms to be alike, weather bent or straight, and would it self be neassitated inorder to prevent the above disruption or distortion, besides being suggested by the illustrated identical microwave chamber orientations used in sequence. Having such a common principle to motivate chamber orientation (as well as physical hinderance motivation), would not need explicit discussion to the competent engineer, who would have been expected to apply such basic considerations as a matter of course.

Applicant has asked for evidence that one of ordinary skill in the art "knows that these chambers [microwave plasma apparatus] each have their own magnetic and

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electrical fields associated with them ...". Applicant is invited to look in virtually any microwave plasmas patent, and see discussion of magnetic and electric field associated with the apparatus and process. For the properties of electric and/or magnetic fields, and their additive or subtractive properties, any physics text on the topic, should supply this information, as exemplified by the excerpts from Parcell's "Electricity and Magnetism", p. 16-29, 190-193 and 198-219, especially noting figures such as 1.9, 1.10, 1.11, 6.7, 6.8, 6.12, 6.15, 6.17, 6.18, 6.19, 6.22-6.24 & 6.28 for effects of these fields and current flows on the surrounding and multiple sources, etc. One of ordinary skill would have been expected to be able to apply this basic knowledge to chamber configuration design as applied to Wagner et al or any of the secondary or ternary references. Since the electric and magnetic fields are critical to the creation and operation of any plasma, not placing the apparatus in a configuration that would interfere with its operation would have been a basic engineering consideration.

10. Any inquiry concerning this communication should be directed to M L.

Padgett at telephone number 703-308-2336 on M-F from about 8:30 am – 4:30 pm; or

FAX # (703) 872-9310 (regular); 872-9311 (after final); or 305-6078 (informal).

M. L. Padgett/mn 6/27/03
July 3, 2003



MARIANNE PADGETT
PRIMARY EXAMINER